REMARKS

In the Office Action, the Examiner rejected claims 1-8 and 26 pursuant to 35 U.S.C. §103(a) as being unpatentable over Grenon (U.S. Patent No. 6,258,033) alone or further in view of Sasaki et al. (U.S. Patent No. 5,469,849). Claims 9-10 were objected to as allowable if amended. Claims 12, 14-23, 25 and 27 were allowed. Applicants request reconsideration of the rejections.

New arguments are shown in italics below.

Independent claim 1 recites initiating a contrast agent quantification procedure, repeating the initiating during a same imaging session, and automatically normalizing a setting as a function of received information for each initiation.

Applicants previously argued that Grenon does not suggest these limitations. Grenon note that contrast agent stability (see CSM) is non-linear and depends on the type of agent, amount of agent, and variability in a patient over time (col. 1, line 59-col. 2, line 9). To image, a region of interest is defined, received echoes are processed to determine a characteristic, a system parameter is set to achieve a desired characteristic, and a subsequent image is acquired using the set parameter (col. 3, lines 12-23). The method is divided into two phases-calibration and measurement (col. 6, lines 17-18). In the calibration phase, a desired normalization value is obtained (col. 6, lines 34-51). The normalization is set to a desired contrast agent response (col. 6, lines 52-62). The measurement phase begins after a desired normalization value is achieved (col. 6, lines 63-66). Grenon does not suggest repeating the method during a same imaging session. Fig. 3 does not show any loop back to initiate the entire method or the measurement phase again.

Grenon notes that once the contrast agent stability made is measured, adjustments can be made to change or maintain the desired contrast stability mode and normalization value (see col. 7, lines 30-36). In context, these adjustments are part of the calibration mode (col. 6, lines 42-51). There is no indication to provide the adjustment during the measurement mode. There is also no suggestion to provide the adjustments for initiating another quantification procedure in

the same imagining session. Given the feedback to set infusion rate during calibration, it would not have been obvious to repeat the process during an imaging session.

The Examiner relies on Sasaki et al. in one alternative for automatic adjustment. However, Sasaki et al. provide for manual user input of information to cross reference to system settings (col. 4, lines 20-24; and col. 5, lines 15-45). Sasaki et al. show manual entry of contrast agent information. The same information would be used for any repeat of initiating so there is no suggestion to use received information for each initiation for normalization.

A person of ordinary skill in the art would not have used the parameter setting of Sasaki et al. with Grenon. Grenon seek to eliminate the need to specify the contrast agent being used (col. 3, lines 43-47). Sasaki et al. rely on the specification of the contrast agent to set parameters (col. 4, lines 2-14; and col. 5, lines 15-45).

In response to the arguments above, the Examiner notes that "since Grenn, et al. in suggesting that contrast agent stability is agent variant and time variant would be expected to repeat the automatic calibration if a 're-take' of the session, for example, is necessary". First, claim 1 recites repeating the contrast agent quantification procedure during a same imaging session, not a later or different "re-take" session. Second, to the extent the Examiner is alleging a re-take during a same session, the variation "over time" is relevant between sessions, not within a session. Grenon seek to address these concerns (col. 3, lines 1-9), but never suggest dealing with time variation during the imaging session. The procedure set by Grenon does not call for repetition, but instead calibrates once. Grenon clearly treated time variation as a problem between sessions, not within a session. The other concerns in the list are differences relevant to between sessions, not within a session. Type of agent, amount of agent, and difference in patients all are likely to be different between sessions, not within a same session. Grenon suggests calibration between sessions, not automatic normalization for each initiation when repeating a procedure during a same session. By repeating the procedure and normalization during a same imaging session as claimed, changes in the imaging window, imaging plane, or other session variables which may benefit from a new gain profile may be addressed, such as for cardiology applications. Grenon does not suggest addressing differences

within a session and does not suggest addressing the types of variables that may change during a session.

Dependent claims 2-8 and 26 depend from claim 1, so are allowable for the same reasons. Further limitations patentably distinguish from Grenon and Sasaki et al. Claim 3 recites performing quantification for different view or settings, but Grenon only shows one measurement phase. Claim 5 recites normalizing at the beginning of each initiation, but Grenon only initiates once.

CONCLUSION:

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 943-7554 or Craig Summerfield at (312) 321-4726.

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